

*Indirect costs of poor employee health, including absenteeism and decreased on-the-job performance, are usually greater than direct medical costs. Multiemployer data showed the uneven distribution of all three health-related expenditures. This article describes a new framework for estimating the full implications of cost of poor employee health.*

# Estimating the Total Costs of *Poor Employee Health*

by John E. Riedel and Wendy D. Lynch

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Employers want to know the total costs of poor employee health, including absenteeism and work impairment, as well as direct medical costs. Productivity loss due to absenteeism or decreased on-the-job performance is typically greater than direct costs for health care services. Without knowing the full costs of health conditions, decision makers are at a disadvantage when estimating how much they are spending on the health of their employees. This also limits decision makers' ability to create effective health care strategies that target all aspects of cost. Some large employers have access to their health care cost and absenteeism data and, if measured through employee assessment, may also have access to data regarding on-the-job performance. However, these data are not readily available to most employers. Few measure *presenteeism* (work impairment) and many have difficulty accessing and integrating incidental health-related absence.

Therefore, decision makers often choose among policies and interventions without sufficient information to assess the implications. Which medical conditions are most costly? How much of the cost is from medical care versus job impairment or absenteeism? Among those with medical conditions, who is generating the highest costs? What is the distribution of costs, and how can this information be used to create more effective health care strategies or more targeted interventions?



## Estimating Total Health Costs

This article describes a new framework for estimating the full implications of cost—including medical expenses, absences and work impairment. Multiemployer data were used to demonstrate the unevenly distributed nature of all three health-related outcomes. Diabetes is used as an example of the effect of a chronic condition on these outcomes. Estimation models were created using a large data set.

The purpose of this article is to estimate the impact of employee health for an employee population of 10,000 on three factors including overall costs (health care costs, absenteeism and work impairment); costs by condition; and the migration effect (the number of people who will change cost, absence or work impairment categories in the coming year).

The estimates produced from the framework allow us to address a variety of important issues such as gauging the overall impact of all health-related costs to the bottom line, understanding the size of a particular condition, comparing types of costs and assessing the value of different interventions based on the likelihood of people's health status to change over the near term.

Perhaps of greatest value is simply the availability of data with which to understand costs and consider options. The majority of employers do not track absences in a formal system, and even fewer have detailed information about productivity (actual or self-report). Using conservative estimates, these two outcomes produce 60% of total health-related costs, compared to 40% for medical expenses. In a population where salaries are high and work continuity leads to losses greater than salary, the value of absence and productivity loss could approach 70% to 80% of total.

While most of us know that medical costs are quite skewed across a workforce of employees (for example, very few people account for a high proportion of costs), less is known about this issue for absenteeism and presenteeism. What readers will see is that significantly uneven distribution exists in these productivity factors although, and importantly, the nature of the distribution is unique to the condition. So, while the average remains the most common numeric expression used to describe the magnitude of

costs, it is an inadequate descriptor and often oversimplifies the elements of overall cost to an employer.

## Overall Costs

Knowing the overall cost contributions of health care, absenteeism and work im-

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pairment provides employers a perspective on the complete costs of employee health. In this estimation tool there are eight workforce variables that provide the level of detail necessary to create a meaningful estimate of a specific workforce's costs. We used a workforce of 10,000 employees with an average annual salary of \$40,000; 50% female; 60% married; 50% exempt with a normal age distribution; a geographic distribution equal across all ZIP codes; and an average deductible level of under \$250. Also, with regard to how large a cost to attribute to a lost day, for the purposes of this estimate, the value of lost time due to absence days and work impairment was calculated at one times salary.

We can now estimate the medical and drug, absence and work impairment cost distributions. Figure 1 shows that, for medical costs, over half of the employees cost less than \$1,200 per year, while fewer than 7.5% cost more than \$9,000 per year. However, this 7.5% of employees are con-

*Continued on next page*

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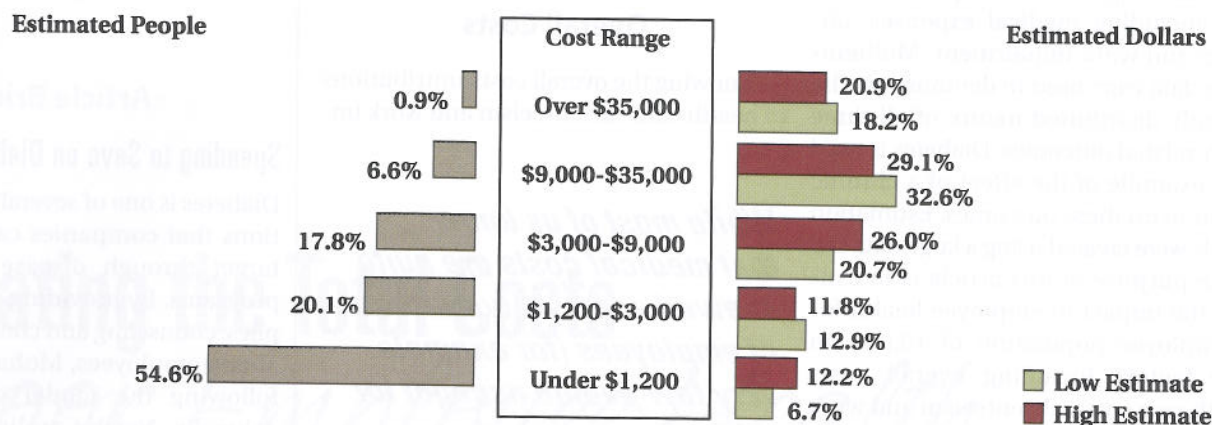
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## Estimated Medical and Drug Cost Distribution (in 2005 Dollars) Average Cost = \$3,075

Figure 1



suming over half of the total costs. Given the range of actual costs, the average cost of \$3,075 doesn't represent the experience of specific employees very well.

Estimated distributions of lost work days are even more dramatic. Figure 2 shows that 3.9% of employees in this sample work group are using between 49.6% and 53.6% of all lost work days. The aver-

age of five lost days is a poor representation of how many lost days of work typical employees have.

The same skewed pattern is evidenced for work impairment (presenteeism). Figure 3 shows that a large percentage of employees (40.6%) indicate no impairment, while 9.5% are responsible for 41.6% to 42.5% of total work impairment.

The average of 7.8% impairment per year is again a poor representation of how much impairment typical employees experience.

### Costs by Condition

Estimations were calculated for a subset of people having diabetes. The distri-

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Figure 2

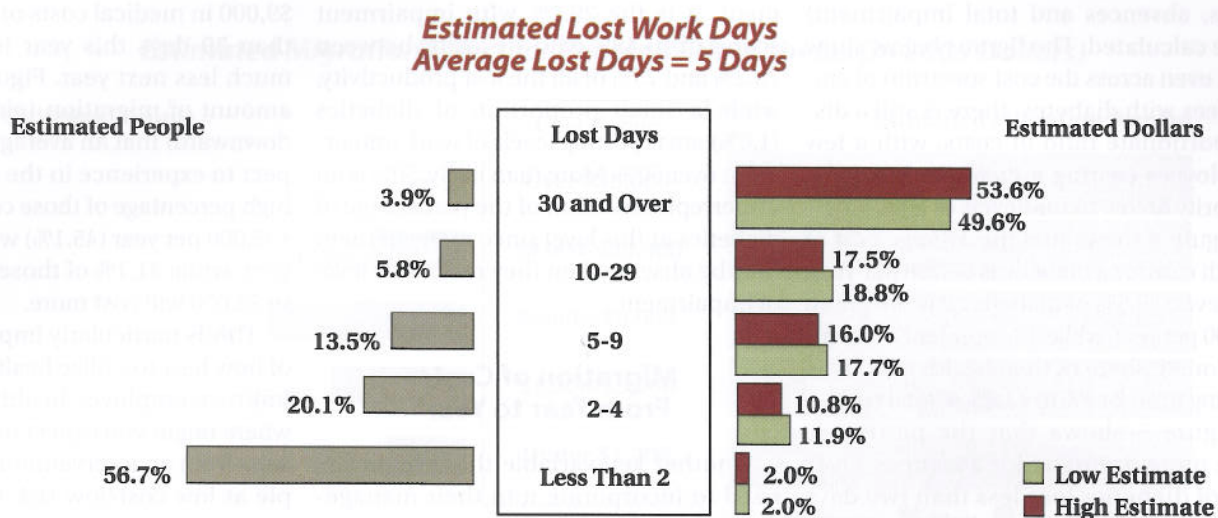


Figure 3

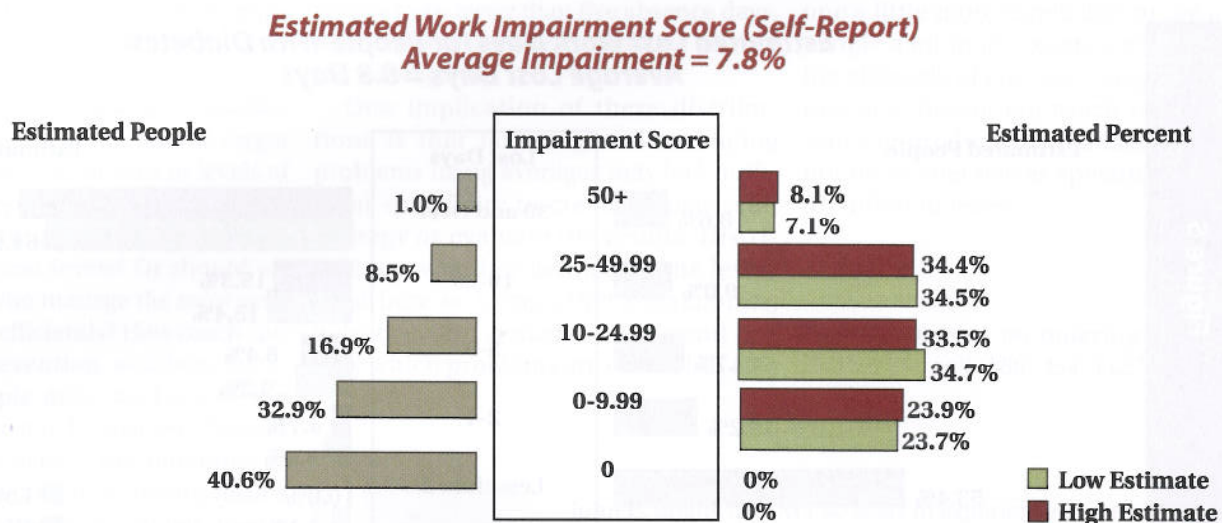
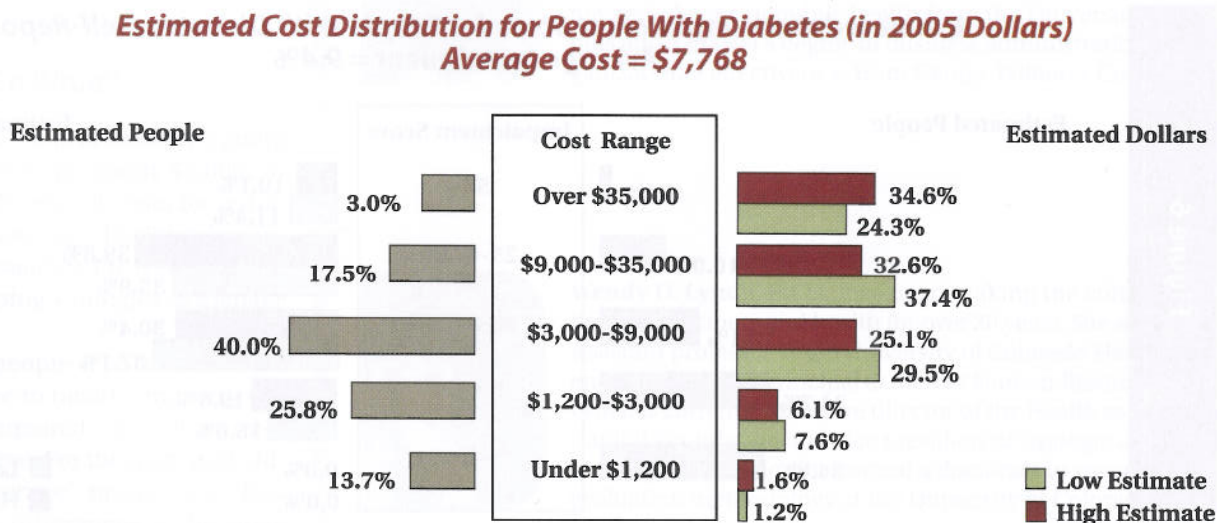


Figure 4





butions of people and outcomes (medical costs, absences and total impairment) were calculated. The figures below show that, even across the cost spectrum of employees with diabetes, there is still a disproportionate ratio of costs, with a few employees costing a great deal and the majority at low to midlevels of cost.

Figure 4 shows that the average cost of health care for a diabetic is \$7,768 per year. However, 39.5% of diabetics cost less than \$3,000 per year, while 3% represent a disproportionate share of total health care costs ranging from 24.3% to 43.6% of total costs.

Figure 5 shows that the pattern is even more dramatic for absences. Over half of diabetics lose less than two days per year, while 8.6% use 64.9% to 70.9% of all days lost.

Figure 6 shows that for work impairment, it is the 29.1% with impairment scores of 10-49% who are losing between 70.2% and 73% of all the lost productivity, while a small proportion of diabetics (1.6%) are reporting levels of work impairment over 50%. More than likely, 50% is an underrepresentation of the percentage of diabetics at this level since many of them may be absent when they reach this level of impairment.

### Migration of Costs From Year to Year

Another key variable that employers need to incorporate into their management strategies is the amount of *migration* that is likely to occur between levels

of cost. A diabetic person who costs over \$9,000 in medical costs or is absent more than 30 days this year is likely to cost much less next year. Figure 7 shows the amount of migration (either upward or downward) that an average group can expect to experience in the coming year. A high percentage of those costing \$9,000 to \$35,000 per year (45.1%) will cost less next year, while 31.1% of those costing \$1,200 to \$3,000 will cost more.

This is particularly important in terms of how best to utilize health care assets to improve employee health. For instance, where might you expect to get the best results from an intervention—keeping people at low cost/low risk from migrating upward, or aggressively managing the most costly employees with the most se-

Figure 5

### Estimated Lost Work Days for People With Diabetes Average Lost Days = 8.8 Days

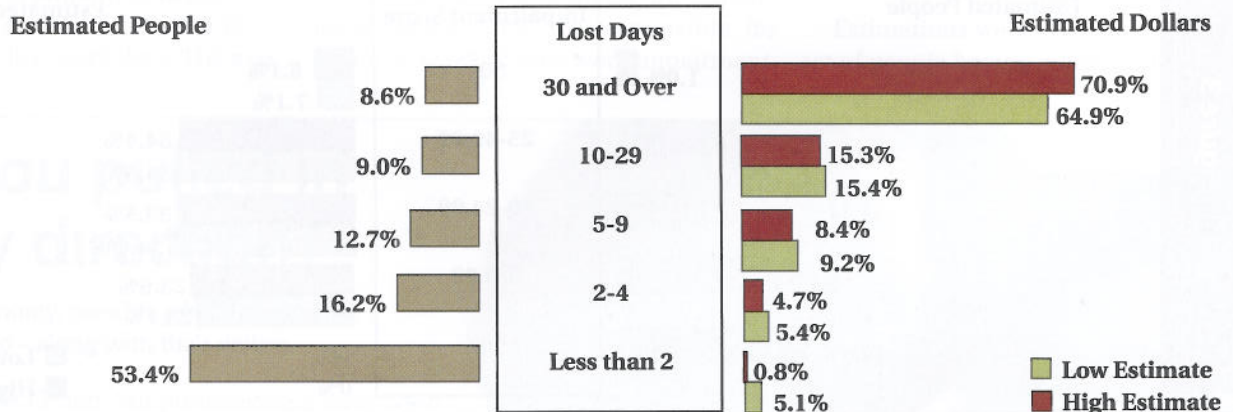


Figure 6

### Estimated Work Impairment Score for People With Diabetes (Self-Report) Average Impairment = 9.4%

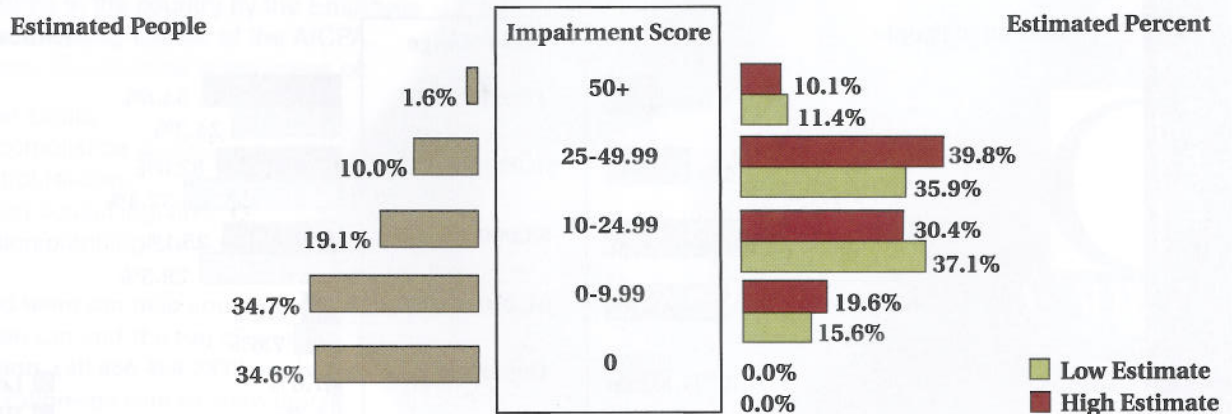
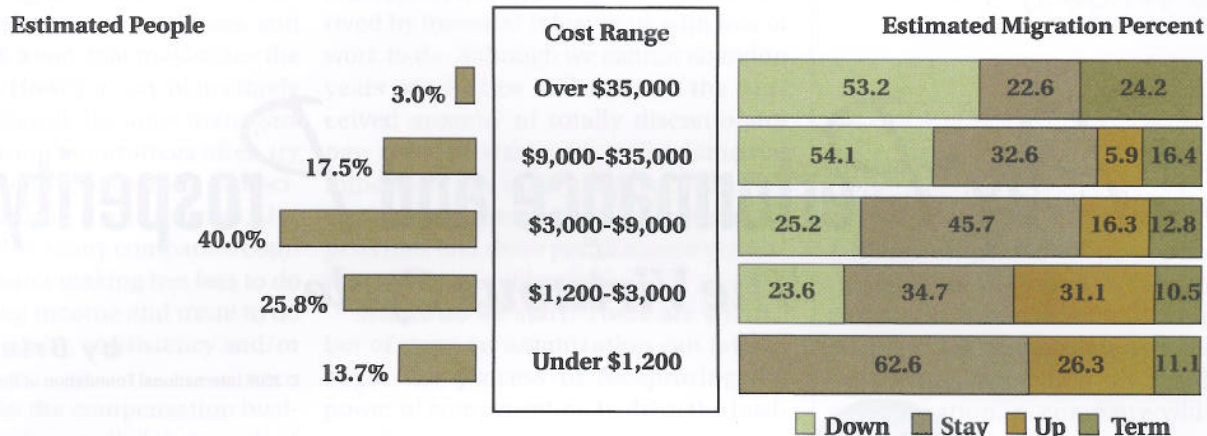




Figure 7

### Estimated Migration Effect for People With Diabetes (in 2005 Dollars)



vere conditions? These are important strategic issues that employers must grapple with to get the highest returns on their investments in health.

By having such information available, decision makers are better able to target specific outcomes, conditions or levels of spending. Should we focus on those in midlevel cost groups to reduce progression to the highest levels? Or should we find providers who manage the most serious cases more efficiently? How much can we invest in prevention, and how many additional people must we keep in the lowest level of cost to break even? Should we address absences as our outcome, or impairment at work? Additionally, results can be evaluated more accurately, focusing on the specific goals of a program—whether that is medical costs or absences, or costs within a level or shifts from one level to another.

#### So What?

Knowing that medical costs for a group of employees average about \$3,000, or that total health-related costs for a diabetic employee average \$13,000, is insufficient for understanding the true nature of costs or developing strategies to manage them.

In general, people report little or no impairment due to health, and very few report being impaired more than one-quarter of the time. For the most part, differences in “average” productivity loss seem driven by differences in the small portion of people who report significant

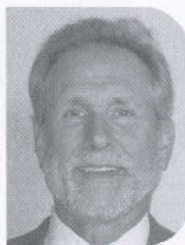
limitations or impairment. Similarly, most people have fewer than five absence days, with cases of long-term absence driving the “average” up.

One implication of these distributions is that targeting and managing problems using averages may lack sufficient specificity to create a successful strategy or evaluate the results. Distributions, whether defined by the levels used here or using other breakpoints, help decision makers understand not only which problems are costly, but also

how those costs are generated. Is everyone a little more expensive, or are a few people a lot more expensive? Considering all levels of cost also suggests that a one-size-fits-all approach to cost, absence or productivity management may not be as effective as specific strategies for different levels.

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